RECENT AUSTRALIAN SPECIES OF THE FAMILY RISSOIDAE (MOLLUSCA)

By Bernard C. Cotton, Conchologist, South Australian Museum

[Read 14 September 1944]

Plate XVI

Introduction

In the following paper an attempt is made to gather together all species of Australian Recent Rissoidae and to allot them to their proper genera. Australian authors have not previously separated the families Rissoidae, Rissoinidae and Litiopidae in the same way in which they are now recognised. We find under Rissoidae such genera as *Diala* which belongs to Litiopidae, *Cithna* belonging to Cyclostremidae, *Rissolina, Stiva* and *Rissoina* belonging to Rissoinidae where the New Zealand *Nozeba* also belongs, and *Heterorissoa* placed by Thiele in Rissoellidae. New species from the dredgings made by the late Sir Joseph Verco and species collected by the author and others are described. It is pretty certain that many more species remain to be discovered in shell sand and alive on the various weeds and sea-grasses around our coasts, even in the shallow waters accessible to the amateur collector. As it is almost impossible for students to classify the Rissoids or even find access to much of the literature concerning them, it is hoped that this preliminary survey with its keys, brief diagnoses and original references will encourage further study both in the Recent and fossil fields. With regard to the latter, much work will have to be done, and no doubt the species will form good indicators of strata. Small mollusca of this type can be obtained in quantity, undamaged by the drill, which so often destroys the larger forms.

Key to Genera of Australian Rissoidae

a. Shell moderately elongate.
  b. Shell not scalariform.
    c. Aperture not separated from the body whorl or duplicate.
      d. Aperture edge thin, often reflexed, much thickened internally, no exterior varix.
        e. Smooth or weakly developed axials .... *Estea*
        ee. Axials of elongate nodules .... *Subestea*
    cc. Aperture edge thickened by means of an external varix.
      f. Sculptured.
        g. Sculpture not clathrate.
          h. Axial ribs dominant .... *Haurakia*
          hh. Spiral sculpture dominant.
            i. Spiral cords .... *Lironoba*
            ii. Spiral incised lines.
              j. Aperture circular, thickened within .... *Botelloides*
              jj. Aperture ovate, not thickened within .... *Subonoba*
        gg. Sculpture clathrate.
            k. Protoconch spirally lirate, dnll .. .... *Merelina*
            kk. Protoconch smooth, glossy .... *Linemera*
      ff. Smooth or nearly so.
            l. Aperture entire, shell not truncate, solid.
              m. Smooth, whorls convex, aperture simple, rotund .... *Notosetia*
              mm. Smooth, whorls flattened, aperture slightly channelled below, aperture ovato-pyriform .. .. *Dardanula*
            ll. Aperture discontinuous, effuse, shell truncate at the apex, transparent .... *Eusetia*

cc. Aperture separated from the body whorl or duplicate.
n. Cylindrical, protoconch large, globose, smooth .... *Epigrus*
nn. Normal shape, protoconch not smooth.
o. Protoconch stippled with very fine lines .... *Scrobs*
oo. Protoconch engraved with a honeycomb pattern .... *Notoscrobs*
bb. Shell scalariform .... *Anabathron*
aa. Shell very elongate, about four times as long as wide.
p. Axially sculptured .... *Caenaculum*
pp. Spirally sculptured .... *Attenuata*

Estea Iredale 1915

Estea Iredale 1915, Trans. New Zealand Inst., 47, 451

Genotype: *Rissoa zosterophila* Webster 1905—Devenport, near Auckland, New Zealand.

Shell minute, oval, elongate, subrimate, dull, smooth, no sculpture; spire conical, higher than the aperture; outlines slightly convex; whorls rather rapidly increasing, flattened, periphery subangled, base rounded, suture not much impressed; aperture slightly oblique, oval, angled above, peristome continuous, but much thickened internally, sharp, very little expanded; columella short, arcuate, callous; operculum colourless and presenting a malleated appearance on the inner surface; protoconch conical, small, of two flat smooth whorls.

Distribution—New Zealand, Australia, Tasmania. Fossil, Tertiary.

Remarks—Distinguished by the smooth shell, the protoconch and shape of aperture, which is perpendicular, circular, with peristome reflected all round. This heterogenous group may represent a number of genera. In any case, there are so many and varied species allotted here that it seems almost impossible and futile to attempt to key them before they have been further studied. There appear to be at least seven groups represented in Australia.

(a) Species which are quite smooth and polished like *approxima*.
(b) Species which are sculptured with microscopic axial accremental striae like *tasmanica*.
(c) Species which have weak axial folds like *frauenfeldi*.
(d) Species with strongly thickened and reflexed aperture lip like *incidata*.
(e) Species with comparatively little thickened and reflected aperture lip like *janjucensis*.
(f) Species with a very blunt apex like *tiara*.
(g) Species with comparatively sharp apex like *rubicunda*.

Gatliff and Gabriel, in figuring the species *Rissoa bicolor* Petterd, point out that the protoconch, under microscopic examination, "shows that the two-whorled protoconch is minutely granulated, these granules being symmetrically arranged in about twelve spiral rows, which are more clearly defined on the second whorl." A similar sculpture or texture is referred to in this paper under the genus *Merelina*.

Estea approxima (Petterd 1884)

Rissoa cyclostoma rosea Tenison Woods 1884, Proc. Roy. Soc. Tasm., 153, not Deshayes 1863 or Hutton 1873
Rissoa approxima Petterd 1884, Journ. Conch., 138, 4.
Rissoa woodsi Pritchard and Gatliff 1902, Proc. Roy. Soc. Vict., 104.

Locs.—Tasm.: Blackman's Bay (type loc. *rosea*). Tamar Heads (type loc. *approxima*); Vict.: Western Port (type loc. *woodsi*); S. Aust.: shell sand from

Guichen Bay, Robe, Largs Bay, St. Francis Island, Venus Bay, also Gulf. St. Vincent, 14 fathoms.

Remarks—Smooth polished and thin lipped. Tasmanian North Coast specimens may be quite white, rose-red, brown or partly white and partly red and brown.

ESTEA BICOLOR (Petterd 1884)

Rissoa bicolor Petterd 1884, Journ. Conch., **4**, 137.

Locs.—Tasm.: North Coast (type loc.), Derwent Estuary, Cape Raoul, 50 fathoms; Vict.: Portsea; S. Aust.: Beachport 110 fathoms, Cape Borda 62 fathoms, Gulf. St. Vincent and Spencer Gulf; N.S.W.: Cape Three Points 41 to 50 fathoms.

Remarks—Distinguished by the white band beneath the suture. South Australian specimens show variations from the type as follows:

(1) More blunt at the apex, suture more impressed, whorls more convex, mouth with more expanded lip and rounder.

(2) Whorls more rapidly increasing, minute rimate perforation, aperture projecting beyond the level of the spire whorls.

(3) Whorls less rapidly increasing, mouth not so expanded, not so bevelled on the inner margin.

ESTEA COLUMNARIA (Hedley and May 1908)

Rissoa columnaria Hedley and May 1908, Rec. Aust., Mus., **7**, 117, pl xxii, fig. 9.

Locs.—Tasm.: seven miles east of Cape Pillar 100 fathoms (type loc.); Vict.

Remarks—Distinguished by the very elongate shape, variable colour, axials fine, close set accremental striae.

ESTEA FRENCHIENSIS (Gatliff and Gabriel 1908)

Rissoa frenchiensis Gatliff and Gabriel 1908, Proc. Roy. Soc. Vict., 379.

Rissoa cylostoma Tenison Woods 1877, Proc. Roy. Soc. Tasm., 152, not Recluz 1843.

Locs.—Vict.: Western Port 6 fathoms, Port Phillip, Puebla Coast; Tasm.: Long Bay (type loc.), Blackman's Bay; S. Aust.: shell sand from Robe, Normanville, MacDonnell Bay, St. Francis Island, Cape Borda 62 fathoms; N.S.W.: Port Jackson.

Remarks—Subturreted, tumid in the middle, suture margined with a white line. This species has a comparatively greater diameter than *approxima*.

ESTEA INCIDATA (Frauenfeld 1867)

Sabanaea incidata Frauenfeld 1867, Novara Exped., Moll., 12, pl. ii, fig. 19.

Locs.—N.S.W.: Botany Bay (type loc.); Tasm.: South and East; Qld.; Vict.

Remarks—Remarkable for its thickened and expanded aperture peristome.

Estea erma n. sp.

(Pl. xvi, fig. 1)

Holotype: Reg. No. D.14184, South Australian Museum.

Shell conical, thick, polished ruby brown, smooth, whorls five, flat and angled at the suture without a peripheral channel; no spiral punctuations; peristome of aperture thickened. Height 1·2 mm., diameter 0·7 mm.

Locs.—S. Aust.: Cape Borda 62 fathoms (type loc.), Backstairs Passage 22 fathoms; Tasm.: North Coast; Vict.

Remarks—Differs from *incidata* in being smaller, having the apex less blunt and no spiral punctuations. One variety has an incision at the very angulate periphery, and another near the base. This may be the species recorded as *incidata* in Victoria and Tasmania.

ESTEA IRAVADOIDES (Gatliff and Gabriel 1913)

Rissoa iravadoides Gatliff and Gabriel 1913, Proc. Roy. Soc. Vict., **26**, 67.

Locs.—Vict.: dredged off Wilson's Promontory (type loc.), Western Port 8 to 10 fathoms; Tasm.: Thouin Bay 40 fathoms.

Remarks—Distinguished by the numerous regular spiral lirae.

ESTEA JANJUCENSIS (Gatliff and Gabriel 1913)

Rissoa janjucensis Gatliff and Gabriel 1913, Proc. Roy. Soc. Vict., **26**, 67, pl. viii, fig. 2.

Locs.—Vict.: Jan Juc, Puebla Coast (type loc.), Western Port 8 to 10 fathoms; Tasm.: Penguin, North Coast in shell sand; S. Aust.: Outer Harbour shell sand, Beachport 40 fathoms.

Remarks—Distinguished by the rather large, roundly pyriform aperture, laterally extended to the right and with a complete peristome. The sculpture in *relata* is even weaker.

ESTEA PRAEDA (Hedley 1908)

Rissoa praeda Hedley 1908, Proc. Linn. Soc. N.S.W., **33**, 468, pl. x, fig. 35.

Locs.—N.S.W.: Middle Harbour (type loc.).

Remarks—The shell is distinguished by the massive perpendicular ribs numbering 11 on the body whorl, and stopping at the periphery, leaving the base smooth; apex smooth.

ESTEA PULVILLA (Hedley 1906)

Rissoa pulvilla Hedley 1906, Proc. Linn. Soc. N.S.W., 30, 526, pl. xxxii, fig. 25.

Locs.—N.S.W.: Manly (type loc.).

Remarks—Distinguished by the polished surface with microscopic growth lines and two spiral brown colour bands, separating this species from *tasmanica* which it otherwise somewhat resembles.

Estea amblycorymba n. sp.

(Pl. xvi, fig. 2)

Holotype: Reg. No. D14185, South Australian Museum.

Shell minute, subcylindrical, thin, shining, white and polished under 10 x magnification; very finely spirally and axially striate under 50 x, striae a little more pronounced around the base; whorls four, flatly convex, widely marginate round and below the sutures with an opaque white band; protoconch flattened, of one and a half depressed whorls, giving the shell a flat-topped appearance; aperture in the plane of the axis, pyriform, peristome reflected and entire. Height 2·1 mm., diameter 1·0 mm.

Locs.—S. Aust.: Gulf St. Vincent 14 fathoms (type loc.), Backstairs Passage 22 fathoms, Streaky Bay, Beachport 40 and 110 fathoms.

Remarks—The species is unique in having the dull white band below the suture and the axial and spiral microscopic sculpture. The body whorl is comparatively larger in proportion to the spire than any other *Estea* described.

ESTEA TASMANICA (Tenison Woods 1876)

Eulima tasmanica Tenison Woods 1876, Proc. Roy Soc. Tasm., 29.

Locs.—Tasm.: Long Bay 6 fathoms (type loc.), Pirate Bay, Derwent Estuary 10 fathoms, east coast 10 to 100 fathoms; S. Aust.: Cape Borda 62 fathoms, Newland Head 26 fathoms; Viet.

Remarks—Bears some relation to *pulvilla* Hedley from New South Wales.

ESTEA TIARA (May 1915)

Amphithalamus tiara May 1915, Proc. Roy. Soc. Tasm., 96, pl. vii, fig. 35.

Locs.—Tasm.: Thouin Bay 40 fathoms (type loc.).

Remarks—This species is evidently one belonging to the *pertumida* type with blunt and flattened apex, which in this case is so flattened that the small tip on the top of the second whorl makes the whole protoconch look like a turban crowning the shell.

ESTEA TUMIDA (Tenison Woods 1876)

Diala tumida Tenison Woods 1876, Proc. Roy. Soc. Tasm., 147

Locs.—Tasm.: Swansea (type loc.), King Island; S. Aust.: Beachport 40 and 150 fathoms, Cape Jaffa 130 fathoms; Vict.: Western Port.

Remarks—Distinguished by the almost obsolete oblique axial plaits, and the colour banding of yellow above and below the sutures.

ESTEA FRAUENFELDI (Frauenfeld 1867)

Rissoa frauenfeldi Frauenfeld 1867, Novara Exped., Moll., 10, pl. ii, fig. 13.

Locs.—N.S.W.: Sydney, Port Jackson (type loc.); Qld.

Remarks—Distinguished from *olivacea* by the axial sculpture which is obsolete on the upper whorls and pronounced on the body whorl in this species. In *olivacea* the sculpture becomes obsolete on the body whorl.

Estea relata n. sp.

(Pl. xvi, fig. 3)

Holotype: Reg. No. D14186, South Australian Museum.

Shell subacute, conical, solid, fawn-coloured; whorls six, slightly convex, suture deeply incised; penultimate and body whorl weakly axially plicate; aperture oval; lip thickened. Height 3 mm., diameter 1·4 mm.

Locs.—S. Aust.: Gulf St. Vincent 14 fathoms (type loc.).

Remarks—This species is related to *frauenfeldi* approximating to the drawing by Frauenfeld of the less strongly sculptured variety which he gives together with the typical form in his original description. This species *relata* is more solid with strongly developed aperture and peristome.

ESTEA PERPOLITA May 1919

Estea perpolita May 1919, Proc. Roy. Soc. Tasm., 61, pl. xv, fig. 13.

Locs.—Tasm.: Thouin Bay 50 fathoms (type loc.), Cape Pillar 100 fathoms.

Remarks—Distinguished by its rounded whorls, flattened summit and high polish, differing from *rubicunda* in being shorter and blunter.

ESTEA PERTUMIDA (May 1915)

Amphithalamus pertumida May 1919, Proc. Roy. Soc. Tasm., 96, pl. vi, fig. 33.

Locs.—Tasm.: Thouin Bay 40 fathoms (type loc.), Cape Pillar 100 fathoms.

Remarks—Distinguished by the swollen whorls, particularly the whorl following the protoconch. The whorls are also constricted abruptly at the base towards the suture, somewhat like those of *obeliscus*.

ESTEA PUER May 1921

Estea puer May 1921, Check List Moll., Tasm., 51.

Rissoa pupoides May 1915, Proc. Roy. Soc. Tasm., 93, pl. v, fig. 26 (not *pupoides* Stimpson 1851).

Locs.—Tasm.: Port Arthur 50 to 70 fathoms (type loc.).

Remarks—Known only from the type locality. This species is remarkable for its pupaeform shape. Its deeply impressed suture somewhat recalls *pertumida* and *obeliscus*.

ESTEA RUBICUNDA (Tate and May 1900)

Rissoa rubicunda May 1900, Trans. Roy. Soc. S. Aust., **24**, 100.

Locs.—Tasm.: Derwent Estuary (type loc.); Vict.: Western Port.

Remarks—Related to *perpolita* but is less blunt at the apex as well as showing the other differences mentioned under *perpolita*.

ESTEA KERSHAWI (Tenison Woods 1877)

Rissoina kershawi Tenison Woods 1877, Proc. Roy. Soc. Vict., 57.

Locs.—Vict.: Western Port; Tasm.: North Coast Channel 10 fathoms (type loc.).

Remarks—Distinguished by the axial riblets covering the whole of the whorl.

ESTEA LABROTOMA May 1919

Estea labrotoma May 1909, Proc. Roy. Soc. Tasm., 61, pl. xv, fig. 14.

Locs.—Tasm.: Frederick Henry Bay, taken from roots of the giant kelp (type loc.).

Remarks—Distinguished by the thick and well reflected peristome, which has a deep indentation where it joins the body whorl.

ESTEA MICROCOSTA May 1919

Estea microcosta May 1919, Proc. Roy. Soc. Tasm., 61, pl. 15, fig. 12.

Locs.—Tasm.: seven miles east of Cape Pillar 100 fathoms (type loc.); S. Aust.: Beachport 40 and 200 fathoms; Vict.

Remarks—Distinguished from *kershawi* by the much more numerous and finer ribs, rounder mouth, and more cylindrical form.

ESTEA OBELISCUS (May 1915)

Rissoa obeliscus May 1915, Proc. Roy. Soc. Tasm., 92, pl. v, fig. 4.

Locs.—Tasm.: Port Arthur 50 to 70 fathoms (type loc.), Schouten Island 40 fathoms; Vict.

Remarks—Distinguished by the elongate shell and the comparatively numerous whorls which show a rather sudden constriction at the bottom, running abruptly in towards the suture beneath. There is also an umbilical chink.

ESTEA OLIVACEA (Frauenfeld 1867)

Alvania olivacea Frauenfeld 1867, Novara Exped., Moll., 11, pl. ii, fig. 14.
Rissoa diemenensis Petterd 1884, **4**, 138.

Locs.—N.S.W.: Sydney (type loc.), Botany Bay, Manly Beach; Tasm.: Tamar Heads, Table Cape (type loc. *diemenensis*), Derwent Estuary, King Island, Bass Straits; S. Aust.: Port MacDonnell, Outer Harbour in shell sand, Gulf St. Vincent 14 fathoms, Beachport 200 fathoms, St. Francis Island 15 and 20 fathoms; W. Aust.: 80 miles west of Eucla 80 fathoms; Qld.; Vict.

Remarks—Distinguished by the axially ribbed shell, emarginate by an impressed spiral just below the suture forming nodules on the top of the ribs. This widely distributed shell is now added to the Western Australian fauna.

Subestea n. gen.

Genotype: *Alvania seminodosa* May 1915—Tasm., Thouin Bay 40 fathoms.

Shell small, shining, pale yellowish, elongate; whorls five, rounded, suture well impressed; spire whorls bear about nine nodulous-like ribs which become weaker and narrower as they descend, and almost disappear about the middle of the body whorl; a few faint spirals on the base; aperture rather broadly pyriform, oblique, surrounded by a well-defined margin; protoconch of one-and-a-half whorls, at first smooth and later developing about five faint spirals.

Distribution—Australia.

Remarks—The genus is distinguished by the sculpture of nodulous-like ribs and the protoconch.

KEY TO SPECIES OF SUBESTEA

a. Shell wide and roundly subangulate at the periphery of the body whorl ..... *salebrosa*
aa. Shell normal in shape and not subangulate at the periphery of the body whorl.
b. Axial ribs stopping before the base is reached ..... *seminodosa*
bb. Axial ribs extending unto the base ..... *flindersi*

SUBESTEA SALEBROSA (Frauenfeld 1867)

Rissoa salebrosa Frauenfeld 1867, Novara Exped., Moll., 11, pl. ii, fig. 15.

Locs.—N.S.W.: Sydney (type loc.); Qld.; Vict.

Remarks—Distinguished from *seminodosa* by the comparatively wide shell, subangulation of the body whorl and rather subdilate aperture.

SUBESTEA SEMINODOSA (May 1915)

Alvania seminodosa May 1915, Proc. Roy. Soc. Tasm., 94, pl. vi, fig. 30.

Locs.—Tasm.: Thouin Bay 40 fathoms (type loc.).

Remarks—This genotype species is much smaller than *flindersi* and has a simpler sculpture, there being no interstitial pustules between the major nodules at the suture.

SUBESTEA FLINDERSI (Tenison Woods 1876)

(Pl. xvi, fig. 12)

Rissoina flindersi Tenison Woods 1876, Proc. Roy Soc. Tasm., 154.

Locs.—Tasm.: North West Coast (type loc.); S. Aust.: MacDonnell Bay, Gulf St. Vincent, Largs Bay, Sceales Bay, St. Francis Island 35 fathoms; W. Aust.: Hopetown; Vict.

Remarks—A South Australian specimen of this species is figured, taken from shell sand at Glenelg. They are very closely allied to the Tasmanian specimens in the May Collection.

Haurakia Iredale 1915

Haurakia Iredale 1915, Trans. New Zealand Inst., **47**, 449.

Genotype: *Rissoa hamiltoni* Suter 1898—Lyall Bay, near Wellington, New Zealand.

Shell thin, axial sculpture dominating, sometimes crossed by spiral threads, which may continue to the base or stop at the periphery of the body whorl; aperture round and subvertical, peristome continuous; protoconch smooth and globose with convex whorls.

Distribution—Australia, New Zealand, Tasmania. Fossil, Tertiary.

Remarks—The genus closely resembles *Turboella* Gray 1847 but is distinguished by the rounder aperture and less concave columella. Although regarded sometimes as a synonym of *Turboella* Gray = *Pusillina* Monterosato, the genus has been accepted as distinct by all Australian and New Zealand conchologists.

Key to Species of Haurakia

a. Base spirally ribbed ..... *strangei*
aa. Base smooth or with merely spiral threadlets or axials.
  b. Base with spiral threadlets.
    c. Strong axial ribs and weaker spirals.
      d. No spiral band running round the top of the whorls. ..... *supracostata*
      dd. A spiral band running round the top of the whorls ..... *profundior*
    cc. Weak axial ribs and strong spirals.
      e. Body whorl sculptured all over.
        f. Ribs not arched ..... *novarensis*
        ff. Ribs arched ..... *demessa*
      ee. Body whorl smooth in the middle ..... *mediolaevis*
  bb. Base smooth or with axials only.
      g. Base with axials ..... *liddelliana*
      gg. Base smooth ..... *descrepans*

Haurakia strangei (Brazier 1894)

Rissoa (*Apicularia*) *strangei* Brazier 1894, Proc. Linn. Soc. N.S.W., **19**, 173, pl. xiv, fig. 11.

Rissoa lineata Petterd 1884, Journ. Conch., 137 (non Risso 1826).

Locs.—N.S.W.: Watsons Bay (type loc.); Tasm.: North Coast (type loc. *lineata*), Frederick Henry Bay, Kelso; Vict.: S. Aust.: Gulf St. Vincent 14 fathoms, Beachport 40 fathoms, shell sand from MacDonnell Bay, Guichen Bay, Robe, Streaky Bay, St. Francis Island, Reevesby Island, Venus Bay, Port Elliston, Carawa; W. Aust.: 80 miles west of Eucla 80 fathoms, Hopetown, King George Sound.

Remarks—The following varietal forms may be observed amongst Southern Australian specimens:

(1) There may be no spirals in the body whorls.

(2) One spiral just below the suture causing tuberculation of the axials; another just above the suture marking the end of the axials with a small tubercle.

(3) There may be several spirals which cross and slightly tuberculate the axials, as many as 18 in the penultimate spire whorl.

Haurakia supracostata May 1919

Haurakia supracostata May 1919, Proc. Roy. Soc. Tasm., 62, pl. xv, fig. 16.

Locs.—Tasm.: Frederick Henry Bay (type loc.), North Coast, Thouin Bay 40 fathoms, King Island; Vict.

Remarks—Distinguished by the deeply impressed suture and the comparatively few axial ribs fading at the periphery.

HAURAKIA PROFUNDIOR (Hedley 1907)

Rissoa profundior Hedley 1907, Rec. Aust. Mus., **6**, 358, pl. lxvii, fig. 15.

Locs.—N.S.W.: 35 miles east of Sydney 800 fathoms (type loc.).

Remarks—Distinguished by the spiral band running round the top of the six whorls.

HAURAKIA NOVARENSIS (Frauenfeld 1867)

Alvania novarensis Frauenfeld 1867, Novara Exped., Moll., 11, pl. ii, fig. 16.
Rissoa (Alvania) trajectus Watson 1886, **15**, 596, pl. xliv, fig. 6.

Locs.—N.S.W.: Sydney (type loc.); Qld.: Torres Straits 3-11 fathoms (type loc. *trajectus*), Caloundra; Tasm.: Thouin Bay 40 fathoms.

Remarks—Distinguished by the comparatively greater development of the spirals.

HAURAKIA DEMESSA (Tate and May 1900)

Rissoa (Apicularia) demessa Tate and May 1900, Trans. Roy. Soc. S. Aust., **24**, 98.

Locs.—Tasm.: Thouin Bay 40 fathoms (type loc.), Frederick Henry Bay.

Remarks—There is a variety from Thouin Bay 40 fathoms in which the shell is slightly wider and the spirals less marked.

Haurakia mediolaevis n. sp.
(Pl. xvi, fig. 4)

Holotype—Reg. No. D.14187, South Australian Museum.

Shell ovate, thick, white, not colour banded; whorls five slightly convex, gradate, finely spirally lirate; lirae crossed by weak axial lirae; aperture ovate, columella slightly arcuate; outer lip thickened by a varix; middle of each whorl smooth, or nearly so, through the axials and spirals becoming more or less obsolete. Height 2·5 mm., diameter 1·5 mm.

Locs.—S. Aust.: Cape Jaffa 300 fathoms (type loc.); Tasm.: Thouin Bay 40 fathoms; W. Aust.: Cottesloe (Henn.)?

Remarks—Differs from *H. novarensis* in the weaker sculpture becoming obsolete on the middle of the whorls, and in being unicoloured white or horn without any colour banding of any sort. The species is rare and dredged only at the two localities named. This, and not *novarensis*, may be the species recorded from Cottesloe, Western Australia, by Henn.

HAURAKIA LIDDELLIANA (Hedley 1907)

Rissoa liddelliana Hedley 1907, Proc. Linn. Soc. N.S.W., **32**, (3), 494, pl. xvii.

Locs.—Qld.: Mast Head Reef, Capricorn Group 17-20 fathoms (type loc.); Vict.

Remarks—In this species the axials extend on to the base.

HAURAKIA DESCREPANS (Tate and May 1900)

Rissoa (Pusillina) descrepans Tate and May 1900, Trans. Roy Soc. S. Aust., **24**, 93.
Rissoa incompleta Hedley 1908, Proc. Linn. Soc. N.S.W., **33**, 468, pl. x, fig. 36.

Locs.—Tasm.: Cape Pillar 100 fathoms (type loc.), Pilot Station 10 fathoms; N.S.W.: Middle Harbour, Sydney (type of *incompleta*); Vict.; S. Aust.:

Beachport 40 fathoms, Cape Borda 60 fathoms, Streaky Bay; W. Aust.: Hopetown.

Remarks—Some South Australian specimens have a tendency to develop a weakly defined rib at the bottom of the axials somewhat resembling a spiral basal rib at the periphery, and in some specimens the apical whorls are of a vinous brown and the next whorls of increasing lighter colour.

Lironoba Iredale 1915

Lironoba Iredale 1915, Trans. New Zealand Inst., **47**, 450.
Genotype—*Rissoa suteri* Hedley 1904, Foveaux Straits, New Zealand.

Shell small, ovate, imperforate, gradate and solid; typical sculpture of broad flat spiral ribs; sometimes the ribs are weaker but the spiral sculpture is always dominant; aperture oval, oblique, peristome much thickened; protoconch smooth in one series (typical) and spirally lirate in another.

Distribution—New Zealand, Australia, Tasmania. Fossil, Tertiary.

Key to Species of Lironoba

a. Outer lip rounded, not produced at the base of the columella.
  b. Strong spiral keels.
    c. Keels wider than the interstices.
      d. Keels numbering six .... *freycineti*
      dd. Keels numbering eight .... *archensis*
    cc. Keels narrower than the interstices.
      e. A smooth area at the top of the whorl .... *agnewi*
      ee. Smooth area narrow or obsolete.
        f. Keels five on the body whorl .... *australis*
        ff. Keels seven on the body whorl .... *wilsonensis*
  bb. Weak spiral keels.
      g. Whorls rounded.
        h. Keels irregular .... *sulcata*
        hh. Keels regular.
          i. Keels ten .... *multilirata*
          ii. Keels eight .... *lockyeri*
          iii. Keels seven .... *layardi*
      gg. Whorls angulate.
          j. Weak spiral riblets group to form an angulation .... *unilirata*
          jj. Strong spiral riblets group to form an angulation.
            k. Base with spiral riblets .... *praetornatilis*
            kk. Base smooth .... *imbrex*
aa. Outer lip rounded, but produced at the base of the columella .... *schoutanica*

Lironoba freycineti (May 1915)

Rissoa freycineti May 1915, Proc. Roy. Soc. Tasm., 94, pl. v, fig. 28.

Locs.—Tasm.: Thouin Bay 40 fathoms (type loc.).

Remarks—Distinguished by the six and sometimes seven strong rounded keels on the body whorl, separated by grooves almost as wide.

Lironoba archensis (May 1913)

Rissoa archensis May 1913, Proc. Roy. Soc. Tasm., 47, pl. ii, fig. 5.

Locs.—Tasm.: Arch Island, D'Entrecasteaux Channel (type loc.), Thouin Bay 40 fathoms.

Remarks—Distinguished from *freycineti* by the more numerous keels of the body whorl.

LIRONOBA AGNEWI (Tenison Woods 1877)

Rissoa agnewi Tenison Woods 1877, Proc. Roy Soc. Tasm., 152.

Locs.—Tasm.: Blackman's Bay (type loc.), Frederick Henry Bay, Schouten Island 40 fathoms; N.S.W.; Vict.

Remarks—Distinguished by the smooth arc at the top of the whorls and the four keels of the body whorl. Shells picked out of shell sand by me from Robe, South Australia, bear some resemblance to this species but are not sufficiently well preserved to determine whether they belong here or to *lockyeri*. They probably belong to the latter species.

LIRONOBA AUSTRALIS (Tenison Woods 1877)

Cingulina australis Tenison Woods 1877, Proc. Roy. Soc. Tasm., 147.

Rissoa tenisoni Tate 1899, Trans. Roy. Soc. S. Aust., 23, 233, *nom. mut.*, not *Cingulina australis* Sowerby.

Locs.—Tasm.: Badger Island Bass Straits (type loc.), King Island, Frederick Henry Bay, North Coast; Vict.; S. Aust.: Beachport 200 fathoms, Cape Borda 55, 60 and 62 fathoms, Cape Jaffa 49 fathoms, shell sand from Lacepede Bay, MacDonnell Bay, Holdfast Bay, Guichen Bay, Robe.

Remarks—Distinguished by the five elevated spiral keels of the body whorl. The species is neither *Rissoa* nor *Cingulina*, so the name *australis* stands.

LIRONOBA WILSONENSIS (Gatliff and Gabriel 1913)

Rissoa wilsonensis Gatliff and Gabriel 1913, Proc. Roy. Soc. Vict., 26, 68, pl. viii, fig. 4.

Locs.—Vict.: Wilson's Promontory (type loc.); Tasm.: Thouin Bay 40 fathoms, Cape Pillar 100 fathoms; S. Aust.: Neptune Island 104 fathoms, Cape Borda 62 fathoms.

Remarks—Distinguished from *australis* by the more numerous keels on the body whorl and the less acuminate shell. South Australian shells agree with the cotype.

Lironoba sulcata n. sp.

(Pl. xvi, fig. 5)

Holotype—Reg. No. D.14188, South Australian Museum.

Shell small, rather narrow and elongate, solid, white; whorls convex, slowly increasing in size, four in number; sculpture of numerous irregular fine spiral keels starting after a fairly wide smooth area below the suture, and present right on to the base, the upper two well separated, then the rest more crowded, the interstices giving a sulcate appearance to the shell; aperture well defined, round, entire, lip thickened tending to become a little effuse and very slightly produced below the columella; entire surface microscopically spirally regularly scratched; protoconch paucispiral, depressed smooth whorls giving a truncate appearance to the top of the shell. Height 3 mm., diameter 1·5 mm.

Locs.—S. Aust.: Cape Borda 62 fathoms (type loc.), Gulf St. Vincent 14 fathoms.

Remarks—This peculiar species occurred in number in dredge sifting from the type locality. The irregularly placed spirals, distant at first and then more crowded and running right over the base, together with the microscopic spiral scratches distinguish this species.

LIRONOBA MULTILIRATA (May 1915)

Rissoa multilirata May 1915, Proc. Roy. Soc. Tasm., 93, pl. v, fig. 27.

Locs.—Tasm.: North Coast, Frederick Henry Bay (type loc.); S. Aust.: Kingston shell sand, Cape Jaffa 130 fathoms.

Remarks—Distinguished by the flatly rounded keels of the body whorl, numbering ten, separated by narrow grooves, and smooth base.

LIRONOBA LOCKYERI (Hedley 1911)

Rissoa lockyeri Hedley 1911, Zool. Res. Endeavour, 1, 103, pl. xviii, fig. 22.

Locs.—S. Aust.: 40 miles south of Cape Wiles 100 fathoms (type loc.), St. Francis Island 15, 20, 35 fathoms, Cape Jaffa 130 fathoms, Spencer Gulf 40 fathoms, Cape Borda 62 fathoms.

Remarks—Distinguished from *layardi* by its greater size, tendency to a wider smooth area below the suture and at the base, and in having eight instead of seven keels. It was known previously only from the type locality.

LIRONOBA LAYARDI (Petterd 1884)

Rissoa layardi Petterd 1884, Journ. Conch., 138.

Locs.—Tasm.: North Coast (type loc.), Schouten Island 40 fathoms, Frederick Henry Bay, D'Entrecasteaux Channel, Storm Bay 24 fathoms, North West Coast; Vict.?

Remarks—Distinguished by the fine, regular spiral keels numbering seven on the body whorl. An examination of South Australian specimens previously identified by various local conchologists as *agnewi* and *layardi*, and specimens taken by me at Robe in shell sand, proves them to be variants of *lockyeri*.

LIRONOBA UNILIRATA (Tenison Woods 1878)

Rissoina unilirata Tenison Woods 1878, Proc. Roy. Soc. Tasm., 123.

Locs.—Tasm.: Frederick Henry Bay (type loc.) shallow water to 100 fathoms; S. Aust.: Cape Borda 55 fathoms, Neptune Island 104 fathoms, Beachport 150 fathoms; Vict.?

Remarks—Distinguished by the spiral riblet sculpture forming a single or double keel on the upper whorls, producing an angulation, the body whorl generally but not always destitute of riblets or may have only one.

LIRONOBA PRAETORNATILIS (Hedley 1912)

Alvania praetornatilis Hedley 1912, Rec. Aust. Mus., 8, 139, pl. xli, fig. 16.

Locs.—N.S.W.: Broughton Island, Port Stephens 35 fathoms (type loc.).

Remarks—Distinguished from *imbrex* by the less exsert spire whorls and the spirally ridged base.

LIRONOBA IMBREX (Hedley 1908)

Rissoa imbrex Hedley 1908, Linn. Soc. N.S.W., 33, 469, pl. x, fig. 33.

Loc.—N.S.W.: Middle Harbour (type loc.).

Remarks—Distinguished from *praetornatilis* by the lack of spiral riblets on the base and the more elongate shape of the shell.

LIRONOBA SCHOUTANICA (May 1913)

Rissoa schoutanica May 1913, Proc. Roy. Soc. Tasm., 47, pl. ii, fig. 6.

Locs.—Tasm.: Schouten Island 40 fathoms (type loc.); S. Aust.: Cape Borda 55 fathoms; Vict.: Ninety Mile Beach 140 fathoms.

Remarks—Distinguished from all other species of *Lironoba* by the massive aperture, the lip of which is produced below the columella, and the broad, heavy shell with few strongly developed keels. This is a new record for South Australia.

Botelloides Strand 1928

Botelloides Strand 1928, Arch. Naturgesch., **92**, 1926, A. 8, 66.

Botellus Iredale 1924, Proc. Linn. Soc. N.S.W., **49**, (3), 244; not *Botellus* Spix and Martius 1823 or Moniez 1887.

Genotype: *Onoba bassiana* Hedley 1911—Devenport, North Tasmania.

Shell subcylindrical, rounded at each end, whorls wound obliquely on the last two-thirds of the length; earlier whorls smooth, later bearing fine incised spiral grooves; aperture circular, columella excavate, outer lip grooved within and bevelled to a sharp edge.

Distribution—Australia and Tasmania.

Remarks—The thickening of the aperture within and its small and circular shape, the pupoid shape of the shell and its heavy structure, distinguish this genus from *Subonoba*.

Key to Species of Botelloides

a. Shell gradually widening towards the body whorl ... ... *bassianus*
aa. Shell not widening but cylindrical.
  b. Sides of whorls rather flattened ... ... *borda*
  bb. Sides of whorls somewhat convex ... ... *glomerosa*

Botelloides bassianus (Hedley 1911)

Onoba bassiana Hedley 1911, Zool. Res. Endeavour, **1**, 108, pl. xix, fig. 25.

Locs.—Tasm.: Devenport (type loc.), Thouin Bay 40 fathoms; S. Aust.: Beachport 40, 49, 100, 110, 150 and 200 fathoms, Cape Borda 55 and 62 fathoms. Cape Jaffa 130 fathoms, St. Francis Island 35 fathoms, Newland Head 20 fathoms, Gulf St. Vincent 14 fathoms, Backstairs Passage 22 fathoms; W. Aust.: King George Sound, Bunbury, Rottnest beach, dead; Vict.: Port Fairy; N.S.W.: Twofold Bay and Green Cape 25 to 70 fathoms.

Remarks—This species is larger and more solid than the other two members of the genus, and the shell widens towards the body whorl. This is an addition to the Western Australian Mollusca.

Botelloides borda n. sp.

(Pl. xvi, fig. 6)

Holotype—Reg. No. D14189, South Australian Museum.

Shell solid, oblong, subcylindrical, rounded at each extremity; surface smooth and polished with numerous delicate spiral incisions; whorls very flatly convex; suture slightly sunken and slightly constricting the previous whorl; body whorl slightly longer than the rest of the shell; aperture very small and round, thickened within. Height 3·75 mm., diameter 1·5 mm.

Locs.—S. Aust.: Cape Borda 55 fathoms (type loc.), Gulf St. Vincent 14 fathoms, Beachport 40 fathoms; Vict.: Wilson's Promontory.

Remarks—This species is distinguished from *glomerosa* by its greater size and comparatively greater length to width. It differs from *bassiana* in its more cylindrical shape.

Botelloides glomerosa (Hedley 1907)

Onoba glomerosa Hedley 1907, Proc. Linn. Soc. N.S.W., **32**, (3), 459, pl. xvii, fig. 23.

Locs.—Qld.: Mast Head Reef, Capricorn Group (type loc.), Noosa; Vict.

Subonoba Iredale 1915

Subonoba Iredale 1915, Trans. New Zealand Inst., **47**, 450.

Genotype: *Rissoa fumata* Suter 1898—Te Onepoto, near Littleton, New Zealand.

Shell minute, subcylindrical, thin, imperforate, translucent; sculpture of numerous close spiral incisions; whorls rapidly increasing in size, moderately convex, sutures impressed; aperture slightly oblique, ovate, angled above, peristome continuous, sharp, slightly thickened, basal lip slightly effuse; protoconch papillate, of one-and-a-half smooth and convex whorls.

Distribution—New Zealand, Australia.

Remarks—The aperture, by its oval shape and lack of internal thickening, distinguishes this genus from *Botelloides*.

Subonoba mercurialis (Watson 1886)

Rissoa (*Onoba*) *mercurialis* Watson 1886, Challenger, Zool., 15, 600, pl. xlv, fig. 12.

Locs.—Qld.: off Wednesday Island, Cape York 8 fathoms (type loc.).

Merelina Iredale 1915

Merelina Iredale 1915, Trans. New Zealand Inst., **47**, 449.

Genotype: *Rissoa* (*Alvania*) *cheilostoma* Tenison Woods 1877—Long Bay 20 fathoms, Tasmania.

Shell minute, turreted, yellow, or white, conspicuously latticed throughout; aperture produced, bilabiate and entire; peristome continuous, varied, with subsutural sinus; protoconch paucispiral, depressed, inrolled at the tip, with a weak terminal varix where it adjoins the shell; under 50 x magnification the protoconch shows a minutely porous surface and the very fine dense punctures give the effect of running together into spiral lines or grooves.

Distribution—Australia, Tasmania, New Zealand, Lifu, Kermadec Island.

Remarks—The spirally grooved protoconch distinguishes this genus from *Linemera*.

Key to Species of Merelina

a. Elongate, greatest width less than half the height.
  b. Latticed sculpture with three spirals on the body whorl .. *cheilostoma*
  bb. Latticed sculpture with four spirals on the body whorl ... *gracilis*
aa. Ovate, greatest width less than half the height.
  c. Sculpture a close reticulation .... *australiae*
  cc. Sculpture a wide reticulation.
    d. Body whorl with two spirals .... *hullhana*
    dd. Body whorl with more than two spirals.
      e Body whorl with four spirals .... *cyrta*
      ee. Body whorl with five spirals .... *cucraspeda*

Merelina cheilostoma (Tenison Woods 1877)

Rissoa cheilostoma Tenison Woods 1877, Proc. Roy. Soc. Tasm., 152.
Alvania elegans Angas 1877 (August), Proc. Zool. Soc., 174, pl. xxvi, fig. 15.

Locs.—Tasm.: Long Bay 20 fathoms (type loc.), Thouin Bay 40 fathoms, Frederick Henry Bay, North Coast; N.S.W.: Port Jackson (type loc., *elegans*), Balmoral; Qld.; Vict.; S. Aust.: Beachport 40 and 150 fathoms, Gulf St. Vincent 14 fathoms, Cape Borda 55 fathoms, shell sand from MacDonnell Bay, Kingston, Guichen Bay.

Remarks—Most South Australian and North Tasmanian specimens are worn, and are a little narrower than the typical Peronian specimens.

MERELINA GRACILIS (Angas 1877)

Alvania gracilis Angas 1877, Proc. Zool. Soc., 174, pl. xxvi, fig. 16.
Rissoa devecta Tate 1899, Trans. Roy. Soc. S. Aust., 23, 235.

Locs.—N.S.W.: Port Jackson (type loc., also of *devecta*); Vict.; Qld.; Tasm.: Derwent Estuary, South East 10 to 100 fathoms; S. Aust.: Neptunes 104 fathoms; W. Aust.: Rottnest Island, King George Sound.

Remarks—Flindersian records are from single beach rolled specimens of doubtful determination.

MERELINA AUSTRALIAE (Frauenfeld 1867)

Cingula australiae Frauenfeld 1867, Novara Exped., Moll., 14, pl. ii, fig. 23.
Rissoa ochroleuca Brazier 1894, Proc. Linn. Soc. N.S.W., 1, 174, pl. xiv, fig. 12.
Merelina (*Apicularia*) *apicilirata* Tate and May 1900, Trans. Roy. Soc. S. Aust., 24, 99.

Locs.—N.S.W.: Sydney (type loc.), dredged off Green Point, Watson's Bay (type loc. of *ochroleuca*); Tasm.: North Coast, D'Entrecasteaux Channel (type loc. *apicilirata*); Qld.; Vict.: Kilcunda.

Remarks—Tasmanian specimens in the May collection are typical, but I have been unable to discover any South Australian specimens. A very poor and worn specimen from Rottnest, Western Australia, somewhat resembles this species, but more material would be required before it is added to the Western Australian list.

MERELINA HULLIANA (Tate 1893)

Rissoa (*Alvania*) *hulliana* Tate 1893, Hand List S. Aust. Moll., 7, *nom. mut.* for *Dunkeria fasciata* Tenison Woods 1876, Proc. Roy. Soc. Tasm., 146, *non* Requiem 1848.

Locs.—Vict.: Bass Straits (type loc.); Tasm.: South and North Coast; S. Aust.: Gulf St. Vincent, MacDonnell Bay, Robe, Kingston, Guichen Bay in shell sand.

Remarks—Distinguished by the wide latticed sculpture and broad shell. In life the shell is translucent and has two yellowish spiral bands, one below the suture, the other at the periphery.

Merelina cyrta n. sp.

(Pl. xvi, fig. 7)

Holotype: Reg. No. D14190, South Australian Museum.

Shell minute, turreted, latticed all over; translucent, shining golden yellow, with a white band in the middle of the spire whorls, including the central space and the rib on either side; whorls seven, four spiral lirae crossed by twelve axial, oblique and curved costae on the penultimate; number of axials variable; mouth effuse at the front of the outer lip and labrum slightly sinuous in profile; base has six or seven spiral ribs. Height 2·5 mm., diameter 1·3 mm.

Locs.—W. Aust.: King George Sound (type loc.), Great Australian Bight west of Eucla 100 fathoms, Yallingup, Hopetown, Rottnest, Albany, Ellenbrook; S. Aust.: Beachport 40 fathoms, Cape Borda 55 fathoms, 62 fathoms; Neptune Island 104 fathoms, Investigator Straits 20 fathoms, St. Francis Island, 6, 15 and 35 fathoms, Gulf St. Vincent 14 fathoms, shell sand from Port River, Franklin Island, Sceales Bay, Guichen Bay, Largs Bay, St. Francis Island, West Coast, Glenelg.

Remarks—Compared with *M. hulliana* the present species is less solid, more attenuated, seven whorls instead of six; penultimate whorl with four spirals

instead of two; eleven axial costae instead of six or seven and these are more oblique and more curved, but may vary from twelve to twenty; the more effuse mouth at the front of the outer lip, and the more sinuous labrum in profile; the base has six or seven spiral ribs instead of three or four. The following variations may be noted:

1 The two smooth apical whorls are ruddy chestnut, whereas most have a white apex.

2 Most are white, but many have a white band in the middle of the whorls, the rest of the shell being a golden yellow; some have an infrasutural darker band.

3 The respective validity of the axial costae and spiral lirae varies in different examples.

4 The number of axial costae vary in number; in some cases about twelve to fourteen, in others twenty to twenty-four.

5 In some the central spiral lira is prominent and its tubercles are opaque white like a row of pearls.

Merelina eucraspeda (Hedley 1911)

Rissoa hulliana eucraspeda Hedley 1911, Zool. Res. Endeavour, 1, 103, pl. xviii, fig. 21.

Locs.—S. Aust.: 40 miles south of Cape Wiles 100 fathoms (type loc.). Beachport 110 fathoms, Cape Borda 62 fathoms, Neptune Island 104 fathoms.

Remarks—Not bicarinate as in *M. hulliana*, where two spirals encircle the whorls forming the bicarination. In the present species five or six spirals encircle the body whorl and base. It was previously known only from the type locality.

Linemera Finlay 1924

Linemera Finlay 1924, Trans. New Zealand Inst., **55**, 483.

Genotype: *Linemera interrupta* Finlay 1924 = *Rissoa gradata* Hutton preocc.—New Zealand.

Sculpture clathrate, protoconch adpressed, smooth, glossy, and dome-shaped, with inconspicuous sutures, instead of being projecting, spirally grooved, dull, and paucispiral, with deep sutures; aperture with thin edge, sometimes thickened behind with a simple varix, without a second projecting rim inside, a subsutural sinus, rather effuse at base; chink-like umbilicus generally present.

Distribution—New Zealand, Australia and Tasmania. Fossil, Tertiary.

Remarks—Distinguished from *Merelina* by the protoconch, and from *Haurakia* by the tendency to a slight indentation and a stronger spiral rib near the suture, otherwise the sculpture recalls *Haurakia*.

Key to Species of Linemera

a. Elongate, greatest width less than half the height ... ... *suprasculpta*
aa. Ovate, greatest width more than half the height.
  b. Sutures not very deeply excavated.
    c. No spiral beaded rib on the shoulder of the whorl.
      d. Spiral sculpture more prominent than the axial ... ... *filocincta*
      dd. Spiral sculpture less prominent than the axial ... ... *verconiana*
    cc. A spiral beaded rib on the shoulder of the whorl.
      e. Sculpture well developed ... ... *sculptilis*
      ee. Sculpture weak ... ... *occidua*
  bb. Sutures very deeply excavated ... ... *thouinensis*

LINEMERA SUPRASCULPTA (May 1915)

Alvania suprasculpta May 1915, Proc. Roy. Soc. Tasm., 95, pl. vi, fig. 31.

Locs.—Tasm.: Thouin Bay 40 to 50 fathoms (type loc.); S. Aust.: Guichen Bay, Beachport 40 and 200 fathoms, Port MacDonnell, Cape Jaffa 49, 90 and 130 fathoms.

Remarks—Distinguished by the regular reticulate sculpture with spiral lirae in the square meshes, and by the high and narrow shape of the shell.

LINEMERA FILOCINCTA (Hedley and Petterd 1906)

Rissoa filocincta Hedley and Petterd 1906, Rec. Aust. Mus., 6, 217, pl. xxxvii,

Locs.—N.S.W.: Narrabeen 80 fathoms, off Sydney 300 fathoms (type loc.); Tasm.: General 40 to 80 fathoms; S. Aust.: Port MacDonnell; Vict.: Ninety Mile Beach 40 fathoms.

Remarks—In the early part of the shell the axials predominate, but later and on the body whorl the spirals become more prominent than the axials. In *verconiana* the axials are more dominant throughout the shell.

LINEMERA VERCONIANA (Hedley 1911)

Rissoa verconiana Hedley 1911, Zool. Res. Endeavour, 1, 104, pl. xix, fig. 23.

Locs.—S. Aust.: 40 miles south of Cape Wiles 100 fathoms (type loc.), Beachport 40 fathoms, Cape Borda 55 fathoms, Cape Jaffa 130 fathoms; W. Aust.: 120 miles west of Eucla 300 fathoms.

Remarks—The species is distinguished from *filocincta* by the stronger sculpture, particularly the axials which extend right down to the base and are stronger than the spirals. It was known previously only from the type locality.

LINEMERA SCULPTILIS (May 1919)

Merelina sculptilis May 1919, Proc. Roy. Soc. Tasm., 62, pl. xv, fig. 15.

Loc.—Tasm.: Thouin Bay 50 fathoms (type loc.).

Remarks—Distinguished from *filocincta* by its flatter whorls, more numerous axials, strong beaded spirals on the shoulder, channelled sutures, sharp outer lip, discontinuous peristome.

Linemera occidua n. sp.

(Pl. xvi, fig. 8)

Holotype: Reg. No. D.14191, South Australian Museum.

Shell solid, ovate, yellow coloured, imperforate; whorls five including two smooth, rounded, depressed whorls forming the protoconch; suture well defined by a shallow channel; adult whorls crossed by regular strong spirals which get stronger towards the base of the body whorl, these in turn crossed by about 20 axials which fade out on the base of the body whorl; both above and below the suture a spiral of small nodules is defined by an incised spiral line a little deeper than those lines cutting the rest of the whorls, except the strong ones of the base; about a dozen spirals cross the body whorl; aperture ovate, outer lip thickened by a weak varix; colour pattern consisting of a spiral golden band at and below the suture, cut into wide axial flames by the ground colour; round the umbilical region is a narrow golden band, and a tendency to spirals of minute golden dots on the spirals of the base and lower body whorl. Height 2·1 mm., diameter 1·0 mm.

Locs.—W. Aust.: Hopetown (type loc.); S. Aust.: Carawa, West Coast.

Remarks—This species bears some resemblance to *sculptilis* but is easily separated by the smaller size, golden flames and lines, much weaker sculpture and the somewhat thickened outer lip.

Linemera thouinensis (May 1915)

Alvania thouinensis May 1915, Proc. Roy. Soc. Tasm., 94, pl. v, fig. 28.

Locs.—Tasm.: Thouin Bay 40 fathoms (type loc.), D'Entrecasteaux Channel.

Remarks—Distinguished by the deeply excavate sutures. Some specimens from D'Entrecasteaux Channel are variants with more numerous ribs.

Notosetia Iredale 1915

Notosetia Iredale 1915, Trans. New Zealand Inst., 47, 452.
Genotype: *Barleeia neozelanica* Suter 1898—Stewart Island, New Zealand.

Shell minute, ovate-conical, imperforate, subpellucid, white, thin, smooth and shining; sculpture of fine oblique growth lines and a few (in the genotype) spiral striae around the umbilical area; protoconch small, globose, of one-and-a-half smooth, convex whorls, suture impressed, slightly channelled, margined by a thin thread; aperture vertical, oval, angled above, peristome discontinuous, sharp, not thickened, basal lip effuse; columella vertical, slightly concave and callous; a thin callosity on the parietal wall.

Distribution—New Zealand, Australia, Tasmania. Fossil, Tertiary.

Remarks—The distinguishing features are the almost smooth surface, though it may be faintly spirally lirate, convex whorls and simple, round, thin-edged aperture. A species bearing some resemblance to those of this genus was described as *Rissoa pertranslucida* May 1912, but it has since been correctly placed as a *Lissotesta* under family Liotiidae.

Key to Species of Notosetia

a. Colour banded.
  b. Axial bands ..... *simillima*
  bb. Spiral bands.
    c. Bifasciate with brown ..... *nitens*
    cc. Alternately bifasciate with cream and brown ..... *procincta*
aa. Not colour banded.
    d. Translucent white.
      e. Pink spot on base ..... *muratensis*
      ee. No pink spot ..... *pellucida*
    dd. Purple or rose coloured
      f. Aperture subovate ..... *purpureostoma*
      ff. Aperture round ..... *atropurpurea*

Notosetia simillima (May 1915)

Rissoa simillima May 1915, Proc. Roy. Soc. Tasm., 93, pl. v, fig. 26.

Locs.—Tasm: Schouten Island 40 fathoms (type loc.), Port Arthur 50 fathoms, 70 fathoms.

Remarks—May does not mention the type locality or any other definite locality in his original description, merely stating that "it seems to be well distributed on our continental shelf," (*i.e.*, Tasmania). Cotypes in the South Australian Museum are labelled "Schouten Island 40 fathoms." The species is distinguished from *nitens* by the axial banding.

NOTOSETIA NITENS (Frauenfeld 1867)

Setia nitens Frauenfeld 1867, Novara Exped., Moll., 13, pl. ii, fig. 22.
Rissoa (*Cingula*) *atkinsoni* Tenison Woods 1877, Proc. Roy. Soc. Tasm., 153.

Locs.—N.S.W.: Botany Bay (type loc.); Tasm.: Long Bay (type loc. *atkinsoni*), South and East shallow water down to 10 fathoms; Vict.

Remarks—The bifasciation, found both in New South Wales shells and Tasmanian shells, described by Tenison Woods as *atkinsoni,* distinguishes this species.

NOTOSETIA PROCINCTA (Hedley 1908)

Rissoa procincta Hedley 1908, Proc. Linn. Soc. N.S.W., **33**, 469, pl. 10, fig. 34.

Loc.—N.S.W.: Middle Harbour (type loc.).

Remarks—Distinguished by the two spiral, alternating bands of cream and pale brown on each whorl, and the simple pyriform aperture.

Notosetia muratensis n. sp.

(Pl. xvi, fig. 9)

Holotype: Reg. No. D.14192, South Australian Museum.

Shell minute, turbinately conical, polished translucent white, unicoloured except for a faint pink blotch in the middle of the base in living specimens; protoconch microscopic, turbinate, paucispiral, rounded, smooth whorls; whorls five, excluding protoconch, rounded, slightly angulate, suture impressed; aperture ovate, a little produced anteriorly, outer lip thin, acute, inner lip reflected into a false umbilicus. Height 1·5 mm., diameter 0·5 mm. Larger specimens reach 2 mm. in height.

Locs.—S. Aust.: Murat Bay (type loc.), Streaky Bay, Fowler Bay, MacDonnell Bay, Largs Bay, Grange, Cape Borda 55 fathoms, Robe, Beachport 200 fathoms, Franklin Island, Venus Bay; Tasm.: North Coast; Vict.: Western Port; W. Aust.: King George Sound, Abrolhos Island.

Remarks—This species differs from *nitens* in being larger and white, having a longer spire and a pink spot on the base in fresh specimens.

NOTOSETIA PELLUCIDA (Tate and May 1900)

Rissoa (*Nodulus*) *pellucida* Tate and May 1900, Trans. Roy. Soc. S. Aust., **24**, 100.

Locs.—Tasm.: Frederick Henry Bay (type loc.); Vict.

Remarks—Somewhat resembling *muratensis* but there is no basal blotch, and the peristome is thickened.

NOTOSETIA PURPUREOSTOMA May 1919

Notosetia purpureostoma May 1919, Proc. Roy. Soc. Tasm., 63, pl. xvi, fig. 18.

Loc.—Tasm.: Penguin in shell sand (type loc.).

Remarks—Distinguished by the purple or rose-coloured shell and the subovate aperture.

NOTOSETIA ATROPURPUREA (Frauenfeld 1867)

Setia atropurpurea Frauenfeld 1867, Novara Exped., Moll., 13, pl. ii, fig. 21.

Locs.—N.S.W.: Botany Bay (type loc.), Bondi; Qld.; Vict.

Remarks—Distinguished by the purple to rose-coloured shell and round aperture.

Dardanula Iredale 1915

Dardanula Iredale 1915, Trans. New Zealand Inst., **47**, 452.
Dardania Hutton 1882, Trans. New Zealand Inst., **14**, 147, not *Dardania* Stal., 1822.
Genotype: *Dardania olivacea* Hutton 1882.—On seaweed in rock pools, Littleton Harbour, New Zealand.

Shell smooth, whorls flattened or convex, aperture ovate-pyriform, peristome discontinuous and thin, slightly channelled below. Animal with large foot, rounded in front, emarginate behind; opercular lobe small, simple; rostrum emarginate at the extremity; tentacles long and setaceous; eyes large, on swellings at the outer bases of the tentacles; operculum ovate, subspiral, with a long shelly process from below the nucleus.

Distribution—New Zealand, Australia, Tasmania. Fossil, Tertiary.

Remarks—The smooth shell with a tendency to flattened whorls, the slightly channelled aperture and the operculum distinguish this genus.

Key to Species of Dardanula

a. Unicoloured.
  b. White ..... *erratica*
  bb. Coloured.
    c. Black or purplish ..... *melanochroma*
    cc. Brown ..... *dubitalis*
aa. Banded or flamed.
    d. Orange bands ..... *aurantiocincta*
    dd. Red axial flames ..... *flammea*

Dardanula erratica (May 1912)

Amphithalamus erratica May 1912, Proc. Roy. Soc. Tasm., 48, pl. ii, fig. 7.

Locs.—Tasm.: Seven miles east of Cape Pillar 100 fathoms (type loc.), Gordon 10 fathoms; S. Aust.: Beachport 40 fathoms, Cape Borda 55, 62 fathoms, St. Francis Island 35 fathoms, Venus Bay; Vict.: Wilson's Promontory.

Remarks—Distinguished from *flammea* by being unicoloured and longer, and also in the flatter whorls. South Australian specimens here recorded correspond with cotypes.

Dardanula melanochroma (Tate 1899)

Rissoa melanochroma Tate 1899, Trans. Roy. Soc. S. Aust., **23**, 234.
Rissoa melanura Tenison Woods 1877, Proc. Roy. Soc. Tasm., 153, not *melanura* Adams 1850.

Locs.—Tasm.: Blackmans Bay (type loc.); S. Aust.: St. Francis Island 6 and 8 fathoms, Cape Borda 55 fathoms, shell sand from MacDonnell Bay, Robe, Kingston, Venus Bay, Cape Northumberland, West Coast; Vict.: Port Fairy; W. Aust.: King George Sound.

Remarks—Distinguished by the black or purplish though translucent shell, the flatly convex whorls, obtusely angulate base and anteriorly produced aperture.

Dardanula dubitalis (Tate 1899)

Rissoa dubitalis Tate 1899, Trans. Roy. Soc. S. Aust., **23**, 232.
Rissoa dubia Petterd 1884, Journ. Conch., **4**, 137, not *dubia* Defrance 1927.

Locs.—Tasm.: Tamar Heads on rocks at low water (type loc.), North Coast and Cape Pillar; S. Aust.: Cape Borda 55 fathoms, MacDonnell Bay; Vict.

Remarks—Distinguished by the bluish-brown shell, expanded aperture and white labrum.

Dardanula aurantiocincta (May 1915)

Amphithalamus aurantiocinctus May 1915, Proc. Roy. Soc. Tasm., 96, pl. vi. fig. 33.

Locs.—Tasm.: Thouin Bay 40 fathoms (type loc.).

Remarks—Distinguished by the thicker shell, more ovate mouth and the two spiral orange colour bands.

Dardanula flammea (Frauenfeld 1867)

Sabanaea flammea Frauenfeld 1867, Novara Exped., Moll., 12, pl. ii. fig. 22.
Rissoa (Setia) flamia Beddome 1883, Proc. Roy. Soc. Tasm., 169.
Rissoa beddomei Tate 1899, Trans. Roy. Soc. S. Aust., **23**, 234.
Rissoa sophiae Brazier and Henn 1894, Proc. Linn. Soc. N.S.W., **9**, 174.

Locs.—N.S.W.: Botany Bay (type loc.), Watsons Bay (type loc. *sophiae*), Little Coogee; Tasm.: Blackmans Bay 7 fathoms (type loc. *flamia*), Kelso, Tamar River, Derwent Estuary, North Coast; Vict.: Western Port, Portsea; Qld.

Remarks—Distinguished by the red axial flames.

Eusetia n. gen

Genotype: *Rissopsis expansa* Powell 1930—Mangonui Heads in 6-10 fathoms, New Zealand.

Shell small, thin, transparent and blunt at the apex; protoconch heterostrophe running into following whorls without any line or varix of demarcation, the initial whorl immersed by the volution of the succeeding whorl; whorls slightly convex, body whorl comparatively large; aperture expanded, oblique, rhomboidal, peristome discontinuous, slightly thickened, outer lip arcuate, projecting posteriorly at right angles to the body whorl, rounded basal lip expanded, columella sinuous from the formation of the inner lip.

Distribution—New Zealand, Australia, Tasmania. Fossil, Tertiary.

Remarks—This genus bears little resemblance to *Rissopsis* Garrett (genotype *Rissopsis typica* Garrett), a most peculiar species from Viti and Samoa Islands, which is a long exsert shell with constricted and abnormally narrow whorls with a tendency to oblique, twisted plications more or less obsolete. The resemblance to Australian and New Zealand species is in no way apparent, the apertures here being larger, more expanded and more reflected peristome, though discontinuous. In this genus can be placed the two Tertiary fossils *castlecliffensis* and *fricta* Finlay 1930 from New Zealand, the recent genotype from New Zealand and the Australian species here reviewed.

Key to Species of Eusetia

a. Shell moderately truncate.
  b. Shell smooth.
    c. Body whorl less than half the length of the shell ... ... *consobrina*
    cc. Body whorl more than half the length of the shell ... *buliminoides*
  bb. Shell spirally marked.
    d. Microscopic spirals ... ... *columnaria*
    dd. Fine spirals ... ... *maccoyi*
aa. Shell widely truncate ... ... *brevis*

Eusetia consobrina (Tate and May 1900)

Rissopsis consobrina Tate and May 1900, Trans. Roy. Soc. S. Aust., **24**, 101.

Locs.—Tasm.: Frederick Henry Bay (type loc.).

Remarks—Distinguished from *buliminoides* by the turreted form, rounded whorls, elongate-oval aperture and shorter body whorl.

Eusetia buliminoides (Tate and May 1900)

Rissopsis buliminoides Tate and May 1900, Trans. Roy. Soc. S. Aust., 24, 101.

Locs.—Tasm.: Frederick Henry Bay 10 fathoms (type loc.); S. Aust., St. Francis Island 35 fathoms.

Remarks—Distinguished from *consobrina* by the larger and longer body whorl.

Eusetia columnaria (May 1910)

Aclis columnaria May 1910, Proc. Roy. Soc. Tasm., 18, pl. xv, fig. 27.

Locs.—Tasm.: seven miles east of Cape Pillar 100 fathoms (type loc.); Viet.: Wilson's Promontory.

Remarks—Distinguished by the convex whorls and fine spiral grooves which can be seen under 50 x magnification.

Eusetia maccoyi (Tenison Woods 1877)

Rissoa maccoyi Tenison Woods 1877, Proc. Roy. Soc. Tasm., 154.

Locs.—Tasm.: Blackmans Bay (type loc.). Derwent Estuary, D'Entrecasteaux Channel down to 10 fathoms; S. Aust.: Backstairs Passage 22 fathoms, Gulf St. Vincent 14 fathoms, Largs Bay shell sand; N.S.W.

Remarks—Distinguished by the spirally lirate shell.

Eusetia brevis (May 1919)

Rissopsis brevis May 1919, Proc. Roy. Soc. Tasm., 63, pl. xvi, fig. 19.

Locs.—Tasm.: Thouin Bay 40 fathoms (type loc.), Arch Island, D'Entrecasteaux Channel.

Remarks—Distinguished by the very widely truncate apex, and few whorls.

Epigrus Hedley 1903

Epigrus Hedley 1903, Mem. Aust. Mus., 4, 355.

Genotype: *Rissoina cylindracea* Tenison Woods 1878—N.S.W., Port Jackson 45 fathoms.

Shell tall, slender, smooth, cylindrical; aperture oblique, appressed; protoconch of one-and-a-half whorls, large, often protuberant.

Distribution—Australia, Tasmania, New Zealand, Philippines, Tongatabu. Fossil, Tertiary.

Remarks—The genus is allied to *Scrobs* but has not the separated aperture nor the elongate shaped shell of that genus.

Key to Species of Epigrus

a. No median spiral rib on the body whorl.
  b. Not microscopically spirally striate.
    c. Last whorl not uncoiled.
      d. Shell 5 mm. or more in length.
        e. Whorls five and a half ..... *cylindraceus*
        ee. Whorls seven ..... *borda*
      dd. Shell 4 mm. or less.
        f. Length 4 mm. ..... *dissimilis*
        ff. Length under 2 mm. ..... *badius*
    cc. Last whorl uncoiled ..... *protractus*
  bb. Microscopically striate ..... *xanthias*
aa. With a median spiral rib on the body whorl ..... *semicinctus*

EPIGRUS CYLINDRACEUS (Tenison Woods 1878)

Rissoina cylindracea Tenison Woods 1878, Proc. Linn. Soc. N.S.W., **2**, 266.
Rissoa ischna Tate 1899, Trans. Roy Soc. S. Aust., **23**, 233, *nom. mut.*, not *Rissoa cylindracea* Krynicki 1837.
Rissoa (*Amphithalamus*) *simsoni* Tate and May 1900, Trans. Roy. Soc. S. Aust., **24**, 100, pl. xxvi, fig. 76.

Locs.—N.S.W.: Port Jackson 45 fathoms (type loc.); Tasm.: Derwent Estuary, South and East 10 fathoms; Vict.

Remarks—Distinguished by its comparatively large size, cylindrical shape, and from *borda* by the fewer whorls, five-and-a-half in *cylindraceus* and seven in *borda*.

Epigrus borda n. sp

(Pl. xvi, fig. 10)

Holotype: Reg. No. D.14193, South Australian Museum.

Shell cylindrical, strong, shining, white; whorls seven, flatly convex, sculpture of microscopic oblique striae; suture linear; aperture oval, peristome continuous, adnate to the parietal wall. Height 5 mm., diameter 1·5 mm.

Locs.—S. Aust.: Cape Borda 62 fathoms (type loc.), 55 fathoms, Cape Jaffa 90 fathoms, Neptune Island 104 fathoms, Beachport 40, 130, 150, 200 fathoms; W. Aust.: King George Sound, Hopetown, Cottesloe (Henn.)?

Remarks—Distinguished from *cylindraceus* by the more numerous whorls, seven instead of five-and-a-half, and there is no contraction of the body whorl, the callus at the posterior angle of the aperture is not so large and triangular, and the basal margin is not so effuse, the aperture itself is smaller. It is larger, wider and has a more contracted mouth than *dissimilis*. Its main peculiarity is the tendency to have a constricted narrow spiral area below the suture in earlier whorls becoming obsolete on the body whorl. This is probably the specific name of the specimens recorded by Henn. from Cottesloe as "*ischnus*."

EPIGRUS DISSIMILIS (Watson 1886)

Eulima dissimilis Watson 1886, Challenger, Zool., **15**, 522, pl. xxxvii, fig. 5.

Locs.—N.S.W.: Port Jackson 2 to 10 fathoms (type loc.); Tasm.: North Coast; S. Aust.: Beachport 40 fathoms, Investigator Straits 22 fathoms, Cape Borda 55 fathoms, St. Francis Island 6, 15, 20 and 35 fathoms, shell sand Fowler Bay; Vict.: Port Fairy; Qld.

Remarks—The shell is smaller than *cylindraceus* and *borda* and the aperture is wider but less high.

EPIGRUS BADIUS (Petterd 1884)

Rissoa badia Petterd 1884, Journ. Conch., **4**, 138.
Rissoa verconis Tate 1899, Trans. Roy. Soc. S. Aust., **23**, 233.

Locs.—Tasm.: North Coast (type loc.), Islands Bass Straits, Southern Bays down to 10 fathoms; Vict.: Western Port; S. Aust.: Backstairs Passage dredged 10 fathoms; N.S.W.; Qld.

Remarks—Distinguished by its small size, being under 2 mm. in length.

EPIGRUS PROTRACTUS Hedley 1904

Epigrus protractus Hedley 1904, Proc. Linn. Soc. N.S.W., **29**, 185, pl. viii, fig. 8 to 11.

Locs.—N.S.W.: Chinamans Beach, Middle Harbour (type loc.).

Remarks—The shell is small, only 1·3 mm. in length, and is remarkable in that the last whorl is uncoiled. It is not a monstrosity, as several specimens were taken by Hedley at the type locality.

Epigrus xanthias (Watson 1886)

Mucronalia xanthias Watson 1886, Challenger, Zool., **15,** 523, pl. xxxvii, fig. 8.

Locs.—Tongatabu 18 fathoms (type loc.); Philippines 10 to 20 fathoms; Qld.: Wednesday Island, Cape York, North East Australia 8 fathoms.

Remarks—Distinguished by the elongate and narrow shell and spiral microscopic striae.

Epigrus semicinctus May 1915

Epigrus semicinctus May 1915, Proc. Roy. Soc. Tasm., 96, pl. vii, fig. 36.

Locs.—Tasm.: Thouin Bay 40 fathoms; N.S.W.; S. Aust.: Beachport 40 fathoms.

Remarks—Distinguished by the strong, median keel which develops on the body whorl and extends to the lip; there is another small keel on the base. Otherwise somewhat like *badius*.

Scrobs Watson 1886

Scrobs Watson 1886, Challenger, Zool., **15,** 611.
Genotype: *Rissoa* (*Scrobs*) *scrobiculator* Watson 1886—Port Jackson, N.S.W.

Shell small, strong, lustrous; protoconch roundly and bluntly pointed, sculptured with microscopic stipplings arranged in spiral rows; aperture gibbously round, almost transverse to the axis, encircled by a broad furrow which lies between the outer and inner edge of the continuous peristome; inner lip almost horizontal, crossing the entire front of the body, so as to leave no pillar at all, separated from the body by a level shelf; in this shelf is the circumoral furrow, which widens into a small triangular depression at the intersection of the outer lip.

Distribution—Australia, New Zealand, Tasmania.

Remarks—Distinguished by the mouth separated from the body whorl.

Key to Species of Scrobs

a. Elongate and narrow.
  b. Obovate ..... *scrobiculator*
  bb. Tapered.
    c. Body whorl roundly obtusely angulate ..... *pyramidata*
    cc. Body whorl not roundly obtusely angulate.
      dd. About 2 mm. in length ..... *petterdi*
      d. About 1 mm. in length ..... *pellyae*
aa. Ovate.
    e. Smooth.
      f. Widely umbilicate ..... *jacksoni*
      ff. Narrowly umbilicate.
        g. A light colour band below the suture ..... *luteofuscus*
        gg. Two bands of pale orange ..... *capricorneus*
    ee. Sculptured.
      h. Axial costae ..... *costatus*

Scrobs scrobiculator (Watson 1886)

Rissoa scrobiculator Watson 1886, Challenger, Zool., **15,** 611, pl. xlvi, fig. 4.

Remarks—This type species of the genus is of a peculiar pupoid or obovate shape, though it resembles the other Australian and New Zealand species in apertural characters.

Scrobs pyramidata Hedley 1903

Scrobs pyramidata Hedley 1903, Mem. Aust. Mus., **4**, 354, fig. 77.

Locs.—N.S.W.: Wata Mooli 54 to 59 fathoms (type loc.). Botany 50 to 59 fathoms, Port Hacking 22 to 38 fathoms; Vict.: Ninety Mile Beach 40 fathoms.

Remarks—Distinguished by the roundly obtuse angulation of the body whorl, and the conical shape.

Scrobs petterdi (Brazier 1895)

Rissoia (*Amphithalamus*) *petterdi* Brazier 1895, Proc. Linn. Soc. N.S.W., **19**, 697.

Rissoa pulchella Petterd 1884, Journ. Conch., 138, not *pulchella* Risso 1836, Philippi 1836.

Locs.—Tasm.: North Coast and Islands in Bass Straits (type loc.), all round the coast from beach to 4 fathoms; N.S.W.: Botany Bay, Port Jackson; Vict.

Remarks—This minute species is smooth except for the faint growth lines. It is brown-coloured and narrowly umbilicate, narrow in shape and has a prominent aperture and long body whorl.

Scrobs pellyae (Nevill 1881)

Rissoa (*Ceratia*) *pellyae* Nevill 1881, Journ. Asiatic Soc. Bengal, **1**, pt. ii, 165.

Locs.—S. Aust.: in sand from near Adelaide (type loc.). Cape Northumberland, Robe, Fowler Bay, Venus Bay, Henley Beach, Glenelg, all in shell sand. Cape Borda 55 fathoms; W. Aust.: Geraldton ? (Verco).

Remarks—The specimens here recorded, and figured for the first time, are in all probability of the species described by Nevill but not listed from anywhere else but South Australia, and not referred to by subsequent workers. It in some ways resembles *petterdi* but is easily distinguished by the extra whorl and a tendency for the aperture to be well separated from the body whorl, even projecting, and by the strong and continuous peristome. Features referred to in the original description are characteristic of our specimens and are here pointed out. Smooth, polished, shining, of a rich chestnut brown colour; spire shortly and ventricosely conical, suture distinct, apex exceedingly obtuse; whorls three-and-a-half, very convex, last whorl produced, regularly ovate, about two-thirds the size of the whole shell, brought forward at the aperture in a highly characteristic manner. The following variations may be noticed in South Australian specimens:

1 Rather smaller, marked inner lip somewhat projecting; apex less blunt; shell more conical and less cylindrical; whorls less convex.

2 Like the previous variety but with a simple mouth, in which the lip is thinner and little separated from the base of the last whorl.

3 Same length, but narrower than the second variety; more cylindrical and with rounder whorls.

Scrobs jacksoni (Brazier 1895)

Rissoia (*Amphithalamus*) *jacksoni* Brazier 1895, Proc. Linn. Soc. N.S.W., **19**, 695.

Rissoa (*Scrobs*) *badia* Watson 1886. Challenger, Zool., **15**, 612. pl. xlvi, fig. 3, not *Rissoa badia* Petterd 1884.

Locs.—N.S.W.: Sow and Pigs Port Jackson 4 fathoms (type loc.), Port Jackson 2 to 10 fathoms (type loc. *badia*); Tasm.: Pilot Station 10 fathoms, Thouin Bay 40 fathoms; Vict.; S. Aust.: Beachport 40 fathoms, Cape Borda 66 fathoms, Gulf St. Vincent 14 fathoms.

Remarks—Distinguished from *scrobiculator* by the more conical-ovate shell and the more delicate stippling of the protoconch. It is rare in South Australia.

SCROBS LUTEOFUSCUS (May 1919)

Amphithalamus luteofuscus May 1919, Proc. Roy. Soc. Tasm., 63. pl. xvi, fig. 17.

Loc.—Tasm.: Kelso near Tamar Heads (type loc.).

Remarks—Its nearest ally is *jacksoni* but it is more narrowly umbilicate, has a comparatively wider mouth, and a distinctive colour pattern of a light band below the suture on a lustrous red-brown ground colour.

SCROBS CAPRICORNEUS (Hedley 1907)

Amphithalamus capricorneus Hedley 1907, Proc. Linn Soc. N.S.W., 32, 495. pl. xvii, fig. 22.

Loc.—Qld.: Mast Head Reef 17 to 20 fathoms (type loc.).

Remarks—Distinguished by the rich golden colour of the earlier whorls and the two bands of pale orange on the body and later whorls, which are characteristic of this minute shell.

SCROBS COSTATUS (Hedley 1911)

Amphithalamus costatus Hedley 1911, Zool. Res. Endeavour, 1, 104, pl. xix. fig. 244

Locs.—S. Aust.: 40 miles south of Cape Wiles 100 fathoms (type loc.). Beachport 110 fathoms, St. Francis Island 15, 20, 35 fathoms, Gulf St. Vincent 14 fathoms, Cape Borda 62 fathoms.

Remarks—Distinguished by the flat axial ribs. The species was known hitherto only from the type locality.

NOTOSCROBS Powell 1927

Notoscrobs Powell 1927, Trans. New Zealand Inst., 57, 547.
Genotype: *Notoscrobs ornata* Powell 1927—New Zealand.

Shell solid, conical; protoconch dome-shaped of one-and-a-half whorls, sculptured with about twelve spiral rows of round shallow pits which, as they do not also form vertical rows produce a honeycomb effect, adult whorls with plain spiral keels, the uppermost crossed by axial ribs; aperture not separated from body-whorl, peristome continuous, duplicated, inner margin smooth and narrow surrounded by a broad flattened area, widest above and on the parietal wall.

Distribution—New Zealand and Tasmania.

NOTOSCROBS TRIANGULUS (May 1915)

Amphithalamus triangulus May 1915, Pro. Roy. Soc. Tasm., 95, pl. vi, fig. 32.

Loc.—Tasm.: Thouin Bay 40 fathoms (type loc.).

Remarks—Distinguished by the sculpture. There are two New Zealand species, *ornata* and *crosa*.

ANABATHRON Frauenfeld 1867

Anabathron Frauenfeld 1867, Novara Exped., Moll., 13.
Genotype: *Anabathron contabulata* Frauenfeld 1867—Botany Bay, N.S.W.

Shell scalariform, with a carinated shoulder, imperforate, smooth, aperture rounded, peristome continuous; protoconch spirally striate.

Distribution—Australia and Tasmania.

Remarks—Distinguished by the scalariform shell.

KEY TO SPECIES OF ANABATHRON

a. No axial plicae.
  bb. Later whorls not uncoiled.
    c. Spiral keel not massive ... *contabulatum*
    cc. Spiral keel massive ... *ascensum*
  bb. Later whorls uncoiled ... *contortum*
aa. With axial plicae ... *emblematicum*

ANABATHRON CONTABULATUM Frauenfeld 1867

Anabathron contabulatum Frauenfeld 1867, Novara Exped., Moll., 13, pl. ii, fig. 20a.

Anabathron contabulatum lene Hedley 1918, Proc. Linn. Soc. N.S.W., **26**, supp., 53, fig. by Frauenfeld *op. cit.* fig. 20b.

Locs.—N.S.W.: Botany Bay (type loc. *contabulatum* and *lene*); Vict.; Tasm.: North Coast shallow water to 50 fathoms, Frederick Henry Bay, Penguin; S. Aust.: Fowlers Bay, Robe, St. Francis Island; W. Aust.: King George Sound; Qld.

Remarks—Remarkable for the development of the sharp spiral keel at the angle of the whorls, giving the shell a scalate appearance. The slightly wider, more swollen variety "*lene*" is more common in South Australia than the typical form.

ANABATHRON ASCENSUM Hedley 1907

Anabathron ascensum Hedley 1907, Proc. Linn. Soc. N.S.W., **32**, (3), 496.

Locs.—Qld.: Mast Head Reef, Capricorn Group (type loc.).

Remarks—Distinguished by the massive spiral keel, second keel on the base, first appearing as a thread above the suture of the last whorl, the fine microscopic striae over-running the whole surface, and the aperture surrounded by a broad and thick varix.

ANABATHRON CONTORTUM Hedley 1907

Anabathron contortum Hedley 1907, Proc. Linn. Soc. N.S.W., **32**, (3), 496.

Locs.—Qld.: Mast Head Reef, Capricorn Group (type loc.).

Remarks—Remarkable in that the last whorl is uncoiled.

ANABATHRON EMBLEMATICUM (Hedley 1906)

Rissoa emblematicum Hedley 1906, Proc. Linn. Soc. N.S.W., **30**, 526, pl. xxxii, fig. 24.

Loc.—N.S.W.: Manly Beach (type loc.).

Remarks—Distinguished by the axial plicae. A specimen from St. Francis Island, South Australia, approaches this species but it is doubtful whether it is this species or a new one. More material is required before it can be decided.

COENACULUM Iredale 1924

Coenaculum Iredale 1924, Proc. Linn. Soc. N.S.W., **49**, 244.
Parascala Cotton and Godfrey 1931, S. Aust. Nat., **13**, (1), 7. Same genotype.
Genotype: *Scalaria* (*Acrilla*) *minutula* Tate and May 1900—Tasmania.

Shell minute, thick, cylindroid-turreted, very elongate, suture linear, bounded anteriorly by a spiral thread; sculptured by slender slightly oblique ribs number-

ing 15 on the penultimate whorl, and somewhat bent at the angulation of the whorls; the interspaces as wide and smooth; protoconch of a four carinated whorl which is convex and wide, and of a small hemispheric tip.

Remarks—This peculiar shell may be distinguished by its protoconch of one whorl and a tip and by its very elongate and narrow shell. Thiele places *Coenaculum*, with a query, as a section of the genus *Aclis* Loven 1846 in the family Aclidae.

COENACULUM MINUTULUM (Tate and May 1900)

Scalaria (*Acrilla*) *minutula* Tate and May 1900, Proc. Roy. Soc. S. Aust., **24,** 95.

Locs.—Tasm.: North Coast; N.S.W.: dead in shell sand and alive in dredgings from 20 to 22 fathoms Twofold Bay; S. Aust.: shell sand Gulf St. Vincent, Robe, Arno Bay; Viet.: shell sand Western Port.

Remarks—Readily recognised by its elongate form, peculiar sculpture and protoconch, this shell seems to be fairly widely distributed in shell sand along our coasts.

ATTENUATA Hedley 1918

Attenuata Hedley 1918, Journ. Roy. Soc. N.S.W., **41,** (supplement) 52.

Genotype: *Rissoa integella* Hedley 1904—16 miles east of Wollongong, 100 fathoms.

Shell elongate and slender; sculpture of sharp spiral keels which multiply from three on the first to eight on the body whorl; interstices latticed with faint lines and microscopic spiral scratches; aperture subcircular, outer lip bearing a rather strong varix, inner lip reflected over an umbilical furrow; protoconch globose, spirally grooved, of one rounded whorl constricted at the suture.

Distribution—New South Wales.

Remarks—Distinguished from *Coenaculum* by the dominant spiral sculpture of the shell. The protoconch suggests close affinity with that genus.

ATTENUATA INTEGELLA (Hedley 1904)

Rissoa integella Hedley 1904, Proc. Linn. Soc. N.S.W., **29,** 185, pl. ix, fig. 20.

Locs.—N.S.W.: 16 miles east of Wollongong 100 fathoms (type loc.).

Remarks—The elongate, narrow shell and peculiar spiral sculpture distinguish the species.

SUMMARY

Seventeen genera and 103 species of recent Rissoidae are recorded in this revision of the Australian members of the family. This does not include those genera sometimes placed in Rissoidae but here regarded as Rissoinidae, namely, *Rissoina, Rissolina, Stiva* in Australia, and *Nozeba* in New Zealand, all separated from typical Rissoidae by the semilunar, anteriorly effuse or channelled aperture. By comparison, it may be noted that the recent New Zealand fauna contains 29 genera and 131 species. Fourteen genera are common to both Australia and New Zealand. Two new genera and ten new species are described as listed below. The more important localities are mentioned to show the distribution in the various States, and many new southern Australian localities are here recorded for the first time.

NEW GENERA

Subestea n. gen., genotype *Alvania seminodosa* May 1915.

Eusetia n. gen., genotype *Rissopsis expansa* Powell 1930.

New Species

Estea erma n. sp., South Australia, Cape Borda 62 fathoms.
Estea amblycorymba n. sp., South Australia, Gulf St. Vincent, 14 fathoms.
Estea relata n. sp., South Australia, Gulf, St. Vincent 14 fathoms.
Haurakia mediolaevis n. sp., South Australia, Cape Jaffa 300 fathoms.
Lironoba sulcata n. sp., South Australia, Cape Borda 62 fathoms.
Botelloides borda n. sp., South Australia, Cape Borda 55 fathoms.
Merelina cyrta n. sp., Western Australia, King George Sound.
Linemera occidua n. sp., Western Australia, Hopetown.
Notosetia muratensis n. sp., South Australia, Murat Bay.
Epigrus borda n. sp., South Australia, Cape Borda, 62 fathoms.

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